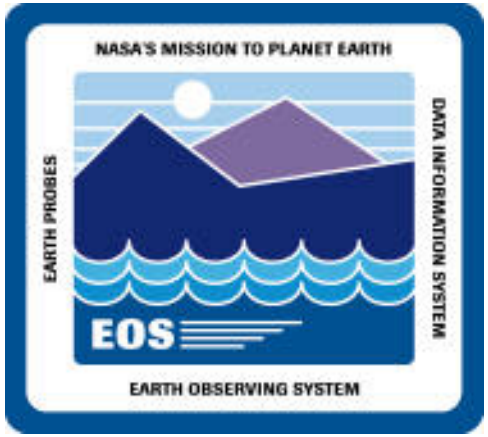

IDR Overview

David Turanski

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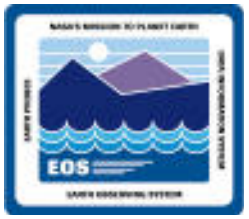
30 October 1995

Overview

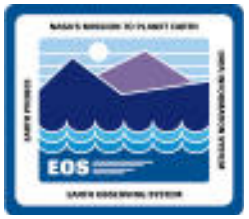


Release B Driving Requirements and New Features

System Context

IDR Presentation Approach

Release B Driving Requirements and New Features



Driving Requirements

Support all Release A functionality plus:
Enhanced user functionality

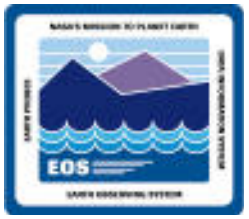
Order-of-magnitude more data
• Push - Release A: 52GB/Day
Release B: 1TB/Day
Distributed production dependencies
Distributed coincident queries
Support for ECS extensions by “others”
Improved administration and control

Improved DAAC autonomy and security
Billing and Accounting
Support for DAR
Support Test and Production modes

New Features

Release B client
ESQL
Subsetting
On-demand processing
Object/Relational DBMS
High Speed Network (HiPPI)
Cross-DAAC planning
DIM/LIM architecture
Public API
End-to-end event tracking
Integrated logistics support
Multi-cell DCE architecture
Costing and pricing services
ASTER interoperability
Mode management

ECS Push/Pull Concept



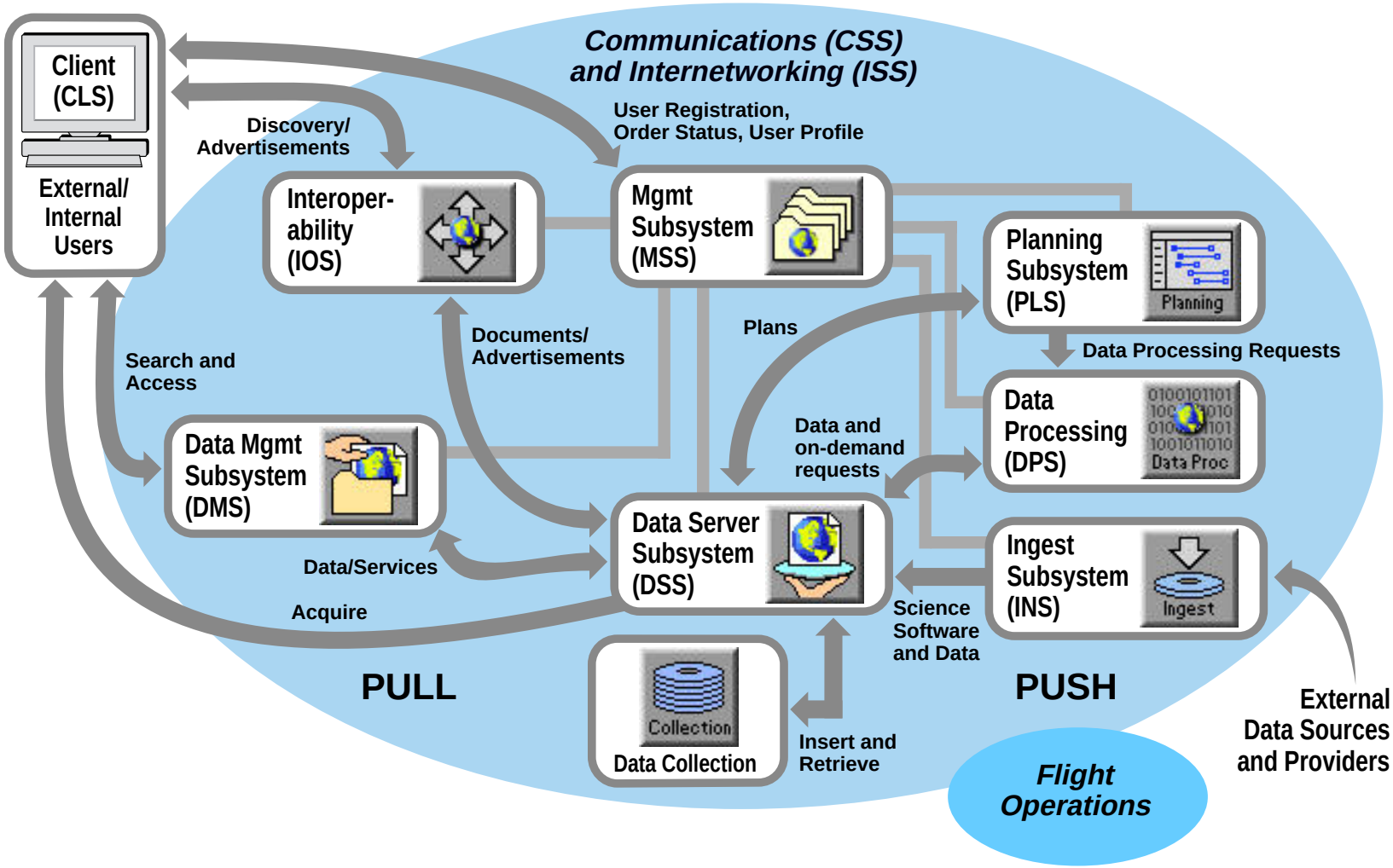
Push

- Science software integration & test
- Ingest of data from external sources
- Data Production & Planning

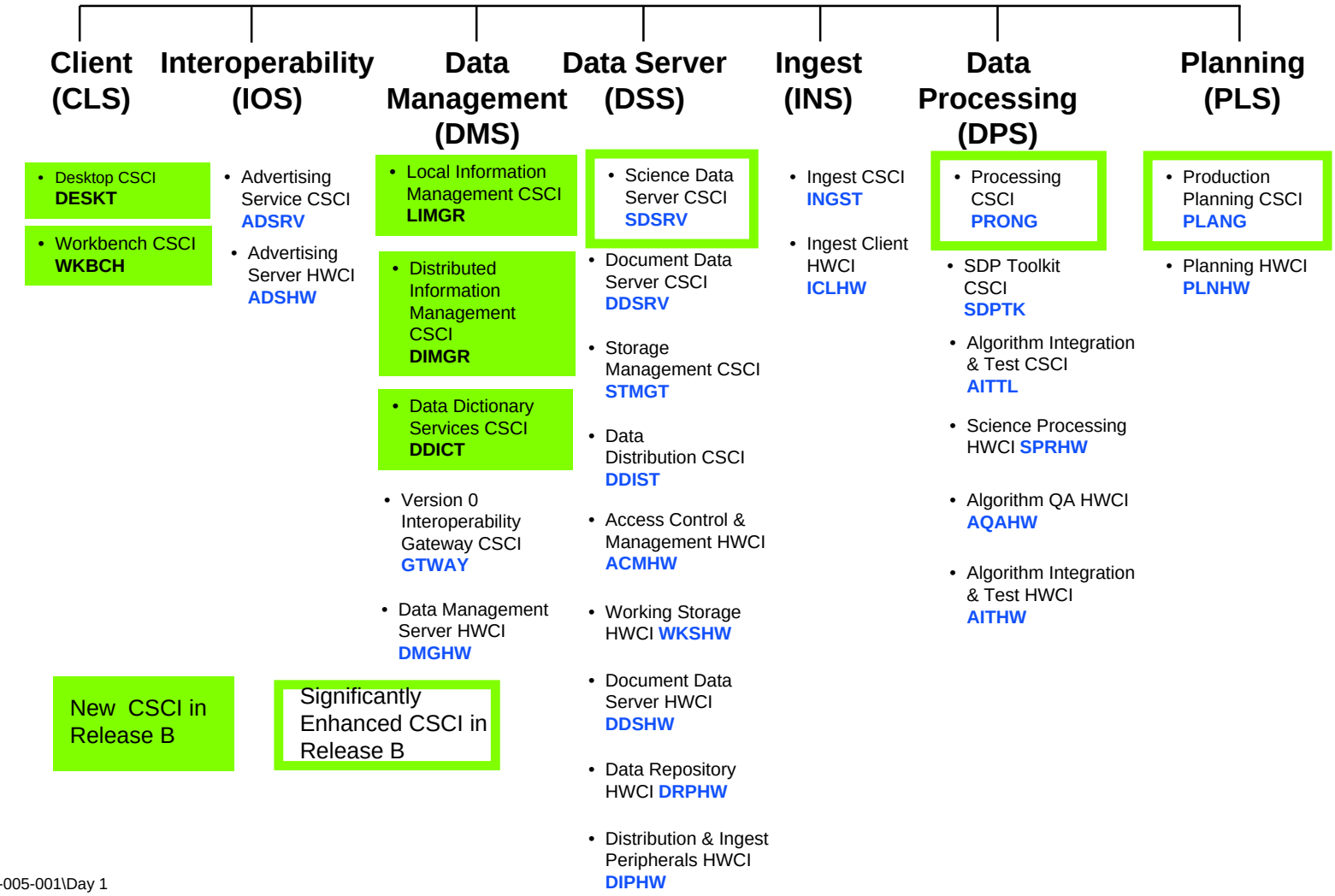
Pull

- End-user interaction via WWW, ECS Client
- Discovery of products and services via Advertiser
- Search, browse, and acquire

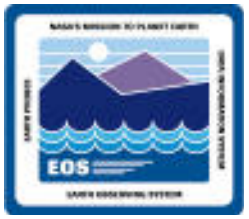
ECS System Context



SDPS CI Overview



CSMS CI Overview



Communications Subsystem (CSS)

- Distributed Computing Software CSCI **DCI**
- Distributed Computing HWCI **DCHCI**

System Management Subsystem (MSS)

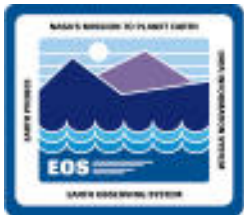
- Management Software CSCI **MCI**
- Management Agents CSCI **MACI**
- Management Logistics CSCI **MLCI**
- Management Hardware HWCI **MHCI**

Internetworking Subsystem (ISS)

- Internetworking CSCI **INCI**
- Internetworking Hardware HWCI **INCI**

Significantly Enhanced CSCI in Release B

IDR Presentation Approach



End-to-end system scenarios

- Push scenarios
- Pull scenarios
- Push+Pull conflict scenarios

Different perspectives of ECS community

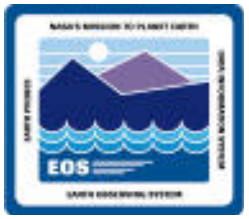
- Science End-user
- DAAC operations and user services
- Data provider
- SMC

Design Drill-downs

- Motivated by scenarios
- Selected topics only
- Illustrate significant design features

Poster sessions and Demos

System Scenarios



Push

- End-to-end ECS activities from science software installation to full data production
- All activities may be performed simultaneously at a single DAAC
- Mission and product lifecycles require ongoing scheduling
- Some operational requirements are unique to each ECS facility

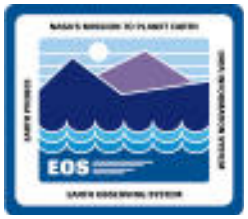
Pull

- Diverse community of end-users demand a variety of access methods
- The client tools are designed to interoperate in a variety of combinations

Push+Pull

- High-stress scenarios
- ECS system must gracefully respond to extraordinary demands

Design Drill-downs



Selected Design Topics

- New or Enhanced in Release B
- Extensibility , evolvability, scalability
- Architectural infrastructure components
- Performance and sizing
- “Hot” topics from ECS community

See DID 305 for complete subsystem-by-subsystem review of preliminary design

- DID 305 for IDR-B prepared to show deltas from CDR-A

Design Drill-Down Presentation Format

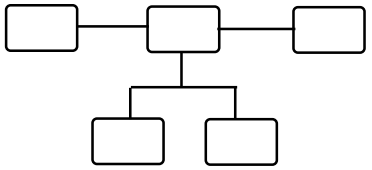
Overview

Introduction
ECS Context
Scenario Context

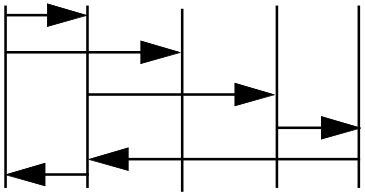
Design Drivers

Architectural Drivers
New Release B features

Software Design



Software Design



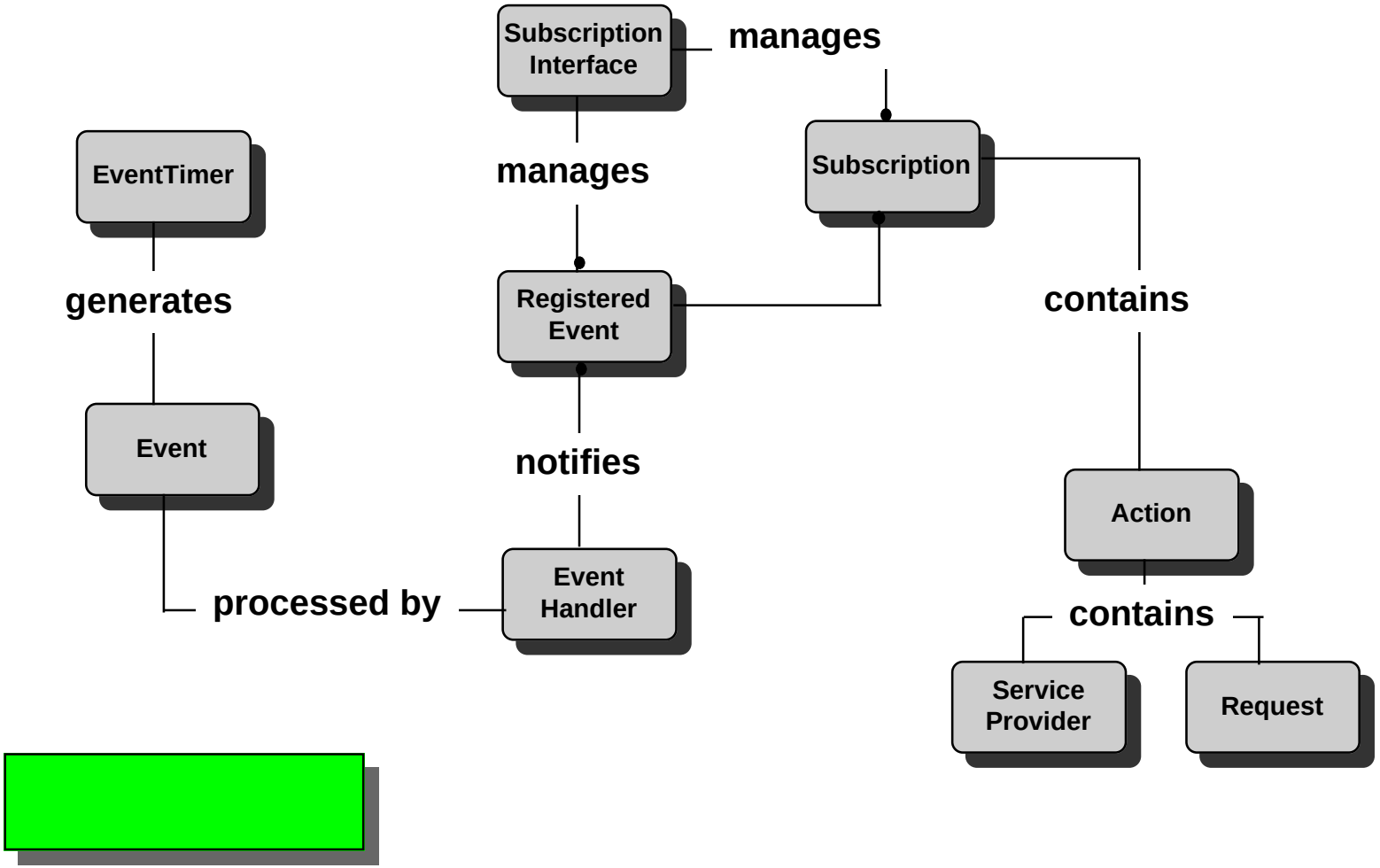
Evolutionary Features

Potential Future Enhancements
Scalability

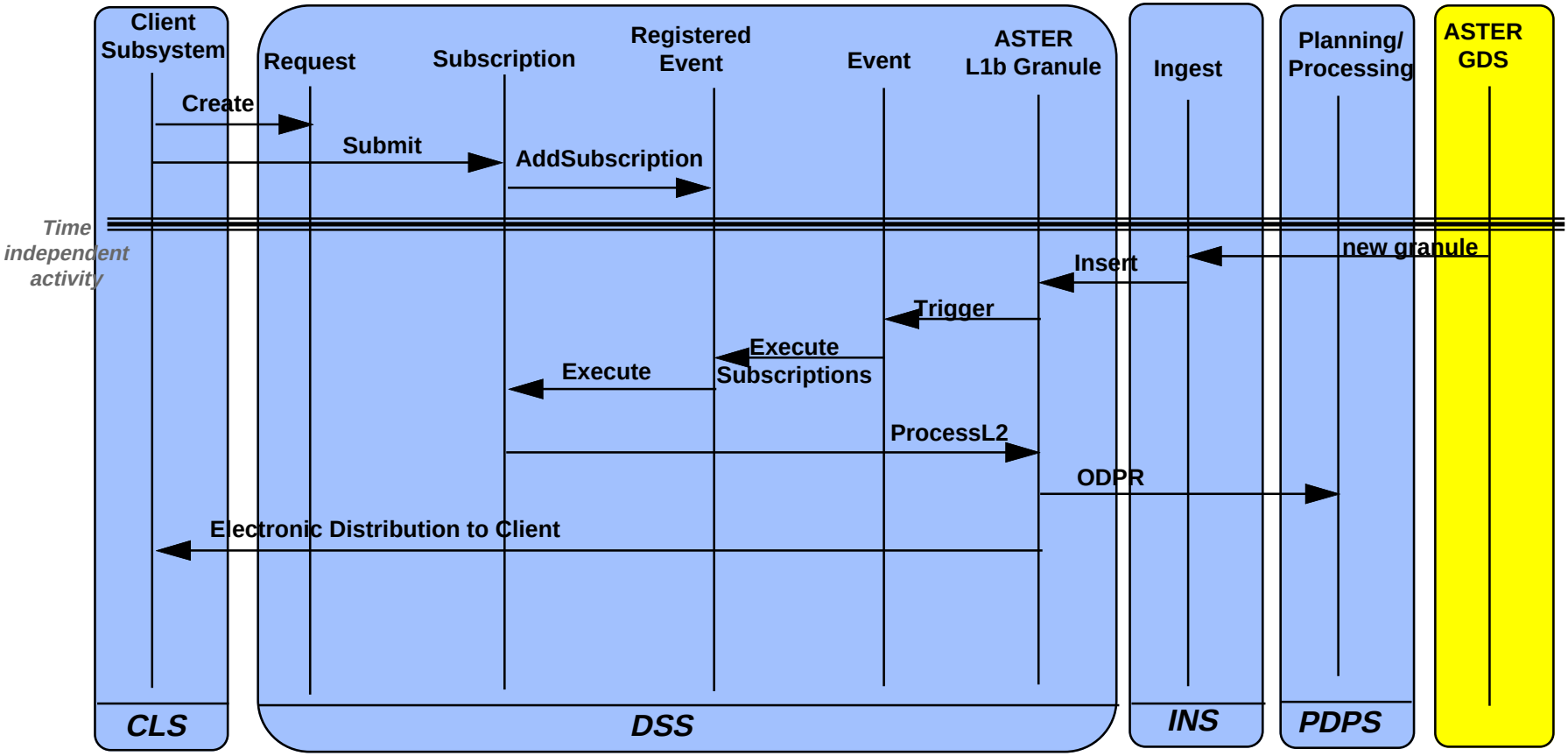
Current Status

COTS Selections
Critical Decisions
Next Steps

Software Design – Example High Level Object Model

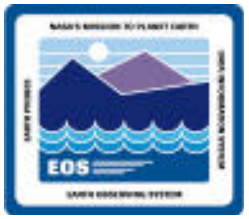


Software Design – Example High Level Event Trace



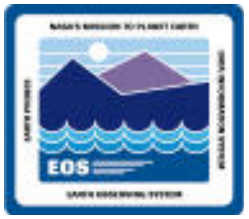
For details, reference: DID 305-CD-024-001

Drill Down Coverage



	INS	PLS	DPS	DSS	DMS	IOS	MSS	CLS	CSS	ISS
Push Scenarios										
Data Collection and Services Definition				X	X	X				
Science Software Ingest & Test	X	X	X	X			X		X	X
Calibration & Validation		X	X	X						
EDOS L0 Data Ingest & L1 Std Prod	X	X	X	X						
Large Scale Reprocessing	X	X	X	X						
Mode Mgmt & HW Fault Handling				X			X		X	
Cross-DAAC Dep. & Higher Lvl Prod		X	X	X						
Data Collection Extensions				X	X	X				
Pull Scenarios										
Advertising Service						X				
Quick Access				X	X	X		X		
Coincident Search				X	X			X		
DAR	X	X	X	X		X		X		X
Disconnected Session				X			X	X	X	
Push+Pull Scenarios										
Spectacular Event	X		X	X	X	X	X	X	X	X
Huge Data Request		X	X	X			X	X		
High Priority Data Request		X	X							
Softwar Error		X	X	X			X			

Drill Down Coverage (Continued)



Design Drill-Downs	INS	PLS	DPS	DSS	DMS	IOS	MSS	CLS	CSS	ISS
Remote Access SS I&T	X	X	X				X		X	X
External Interfaces	X								X	X
Mode Management	X	X	X	X	X	X	X			
Planning Workbench		X								
Predictive Staging		X	X	X						
Adding New ESDTs & Services				X	X	X				
Event Handling/Fault Management							X		X	
DAAC-Unique Extensions	X	X	X	X	X	X	X	X	X	X
Backup/Recovery				X			X			
Science Data Processing Sizing	X	X	X	X	X	X	X	X	X	X
Reprocessing: Case Study		X	X	X						
V1 Client								X	X	
Universal Reference	X	X	X	X	X	X	X	X	X	
Advertiser						X				
Data Management					X					
User Registration/User Profile							X	X	X	
Billing and Accounting			X	X			X	X		
Illustra ORDBMS				X	X					
ESQL				X	X			X		
Emerging Client Technology						X		X		
Session Management	X			X	X	X			X	
On-Demand Procesing Requests		X	X	X				X		
Subsetting				X				X		
Request Tracking	X			X	X		X		X	X
Subscription		X		X	X	X		X		
DAAC LAN Architecture	X	X	X	X	X	X	X	X	X	X
Load Throttling		X		X						
Cross-DAAC Planning		X	X							
Partitioning Large Requests		X	X	X						
SMC Statistics and Reporting							X			
ECS Internal Stress Reaction	X	X	X	X	X	X	X	X	X	X
End-to-end Modelling	X	X	X	X	X	X	X	X	X	X